IMMOBILIZATION AS A ROUTE TO SURPLUS FISSILE MATERIALS DISPOSITION

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In the Cold War aftermath, the U. S. and Russia have agreed to large reductions in nuclear weapons. To aid in the selection of long-term management options, DOE has undertaken a multipronged study to select options for storage and disposition of plutonium (Pu) in keeping with the national policy that Pu must be subjected to the highest standards of safety, security, and accountability. One alternative being considered is immobilization. To arrive at a suitable immobilization form, we first reviewed published information on high level waste immobilization technologies to identify 72 possible Pu immobilization forms to be pre-screened. Surviving forms were screened using multi-attribute analysis to determine the most promising technologies. Promising immobilization families were further evaluated to identify chemical, engineering, environmental, safety, and health problems that remain to be solved prior to making technical decisions as to the viability of using the form for long-term disposition of plutonium. All data, analyses, and reports are being provided to the DOE Surplus Fissile Materials Control and Disposition Project Office to support the Record of Decision that is anticipated in Spring of 1996. Work performed under the auspices of the U.S. DOE by the LLNL under contract no. W-7405-ENG-48.